

Remarks

Claims 22-45 are pending in the subject application. Applicants acknowledge that claims 26-31 have been withdrawn from further consideration as being drawn to a non-elected invention. By this Amendment, Applicants have canceled claims 35-37 and amended claims 22, 24, 25, 32 and 44. Support for the amendments and new claims can be found throughout the subject specification and in the claims as originally filed (see, for example, page 2, lines 9-12, pages 8-10 and the originally presented claims). Entry and consideration of the amendments presented herein is respectfully requested. Accordingly, claims 22-34 and 38-45 are currently before the Examiner. Favorable consideration of the pending claims is respectfully requested.

Claim 22 is objected because the acronym "IL-18BP" is used without first defining what it represents. By this Amendment, Applicants have replaced the acronym "IL-18BP" with "interleukin-18 binding protein" and then placed the acronym in parenthesis. Accordingly, reconsideration and withdrawal of the objection is respectfully requested.

Claims 22-25, 27, 28, 32-42 and 44-45 are rejected under 35 U.S.C. § 112, second paragraph, as indefinite. Applicants respectfully assert that the claims are definite and have addressed each aspect of the rejection separately.

The term "fluid" in claims 22, 24, and 43 is indefinite. The Office Action states that the term is not defined by the claims, the specification does not provide a standard for ascertaining the requisite degree and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. In response to this issue, the claims have been amended to recite that the fluid is selected from urine or cell culture supernatant. Thus, reconsideration and withdrawal of the rejection is respectfully requested.

Claims 32, 34, and 36 are rejected because it is unclear how the limitations of claim 32 relate to claim 22. Applicants have amended the claims and respectfully submit that the claims are now definite and the relationship between the claims is clear in view of these amendments and that the questions posed by the Office Action have been addressed via these amendments.

The phrase "virus removal filtration steps" in claims 35-37 is not defined by the claims, the specification does not provide a standard for ascertaining the requisite degree and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It is respectfully

submitted that the virus filtration steps are clear to those skilled in the art and relate to ultrafiltration protocols known in the art. As these claims are substantial duplicates of claims 33-35, they have been canceled. Accordingly, it is respectfully submitted that this issue is now moot and reconsideration and withdrawal of the claims is respectfully requested.

Claims 44 and 45 are rejected as indefinite because it is unclear how the limitations of claim 44 relate to claim 22. Applicants respectfully submit that the claims are not indefinite and that the relationship between claims 22 and 44-45 is clear in view of the amendments made to the claims. Accordingly, reconsideration and withdrawal of the rejection is respectfully requested.

The term “strong anion exchange chromatography” in claim 39 is not defined by the claims, the specification does not provide a standard for ascertaining the requisite degree and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Applicants respectfully disagree with this rejection and point out that the term is defined in the as-filed specification at page 2, lines 9-12. Accordingly, reconsideration and withdrawal of the rejection under 35 U.S.C. § 112, second paragraph, is respectfully requested.

Claims 22-25, 27, 28 and 32-45 are rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. Applicants respectfully assert that there is adequate written description in the subject specification to convey to the ordinarily skilled artisan that they had possession of the claimed invention. The Office Action indicates that the specification does not clearly define IL-18BP, a virus and all methods of using such.

As the Patent Office is aware, “[t]he ‘written description’ requirement implements the principle that a patent must describe the technology that is sought to be patented; the requirement serves both to satisfy the inventor’s obligation to disclose the technologic knowledge upon which the patent is based, and to demonstrate that the patentee was in possession of the invention that is claimed.” *Capon v Eshhar*, 418 F.3d 1349, 1357 (Fed. Cir. 2005). In this case, the as-filed specification clearly describes the technology to be patented; namely, a method of purifying IL-18BP, including those steps that are to be taken to purify the protein.

It is noted that the Office Action makes certain arguments related to the identification of a virus required for the purification of IL-18BP. The relevance of this comment is unclear as the claimed methods were directed to a virus removal step via filtration and the claimed methods do not utilize a virus in the production of IL-18BP. The virus removal step is discussed in the as-filed specification at page 10, lines 4-10 and filters suitable for the removal of viruses and bacteria are available from a variety of commercial sources (for example, Fisher Scientific). Accordingly, reconsideration and withdrawal of this aspect of the rejection is respectfully requested.

Turning to this issue raised with respect to IL-18 binding proteins, it is noted that the Office Action and the as-filed specification indicate that IL-18BP and its various isoforms are known in the art (see Office Action at pages 5-6 and the as-filed specification at page 5, lines 1-14). As the Patent Office is aware, the Court of Appeals for the Federal Circuit has stated that “it is the binding precedent of this court that *Eli Lilly* does *not* set forth a *per se* rule that whenever a claim limitation is directed to a macromolecular sequence, the specification must always recite the gene or sequence, regardless of whether it is known in the prior art” (see *Falko-Gunter Falkner v. Inglis*, 448 F.3d 1357, 1367, 79 U.S.P.Q.2d 1001 (Fed. Cir. 2006)). Further, the Court also stated “... a requirement that patentees recite known DNA structures, if one existed, would serve no goal of the written description requirement. It would neither enforce the quid pro quo between the patentee and the public by forcing the disclosure of new information, nor would it be necessary to demonstrate to a person of ordinary skill in the art that the patentee was in possession of the claimed invention” *Falko-Gunter Falkner* at 1368. Thus, it is respectfully submitted that the as-filed specification provides adequate written description for the claimed invention and reconsideration and withdrawal of the rejection under 35 U.S.C. § 112, first paragraph, is respectfully requested.

Claims 22-25, 27, 28, 38, 39, and 42-44 are rejected under 35 U.S.C. § 103(a) as obvious over Boschetti (2002) in view of Xiang *et al.* (2001). The Office Action states that Boschetti teaches that hydrophobic charge induction chromatography using 4-mercapto-ethyl-pyridine as the ligand is an effective method for the separation of antibodies from a variety of feedstocks and further teaches that to reach the high purity required for therapeutic applications, the combination of two or more chromatographic procedures is necessary. It is noted that Boschetti does not teach a process for the purification of IL-18BP. The Office Action asserts that Xiang *et al.* teach that approximately 60% of

the mature IL-18BP resembles an immunoglobulin (Ig) domain that includes a highly conserved pair of cysteines and tryptophan residues. In addition, Xiang *et al.* teach that IL-18BP was purified from the cell culture supernatant. Applicants respectfully assert that the claimed invention is not obvious over the cited references.

In order to establish the *prima facie* obviousness of a claimed invention, the Patent Office must supply rationale and evidence that would support a conclusion that the claim would have been obvious and that a person of ordinary skill in the art would have been motivated to combine the prior art to achieve the claimed invention and that there would have been a reasonable expectation of success. *See* Examination Guidelines for Determining Obviousness Under 35 U.S.C. 103 in View of the Supreme Court Decision in *KSR International Co. v. Teleflex Inc.* (72 Fed. Reg. 57526) citing to *DyStar Textilfarben GmbH & Co. Deutschland KG v. C.H. Patrick Co.*, 464 F.3d 1356, 1360, 80 USPQ2d 1641, 1645 (Fed. Cir. 2006).

In this case, it is respectfully submitted that the Office Action fails to establish that one skilled in the art would have had a reasonable expectation of success in purifying IL-18BP on the basis of the cited references or that one skilled in the art would have been motivated to combine the teachings of the cited references. It is noted that the Office Action states that “Xiang *et al.* teach that approximately 60% of the mature human IL-18BP **resembles an immunoglobulin (Ig) domain** that includes a highly conserved pair of cysteines and tryptophan residues and that IL-18BP was purified from a cell culture supernatant” (emphasis added). Applicants note that the cited reference does not teach that this segment of the mature IL-18BP is an Ig domain; rather, 60% of human IL-18BP **resembles** an Ig domain. Further, the cited reference indicates that the predicted Ig domain of IL-18BP has only about 25% amino acid sequence identity with a similar domain within the IL-1 receptor (page 17380, column 2, first full paragraph) and provides no teaching as to the degree of similarity the IL-18BP has with immunoglobulin molecules or domains thereof. Applicants also note that the IL-1 receptor is not an immunoglobulin. Further, the purification noted in the Office Action relates to the use of avidin/biotin affinity chromatography to purify biotinylated polypeptides. Such purification relies upon the affinity of biotin for avidin/streptavidin for the purification process (see page 13381, paragraph bridging columns 1-2) and is a process significantly different from that taught in Boschetti and recited within the instant claims. It is respectfully submitted that one skilled

in the art would not have been motivated to combine the cited references to arrive at the claimed invention nor would one skilled in the art have had a reasonable expectation of success in applying HCIC to the purification of IL-18BP (particularly in view of the teachings that only about 60% of the mature form of human IL-18BP **resembles** an immunoglobulin domain and that this segment of IL-18BP only has about 25% sequence identity to human IL1 receptor). Accordingly, reconsideration and withdrawal of the rejection is respectfully requested as the cited combination of references fails to establish a *prima facie* case of obviousness for the claimed invention.

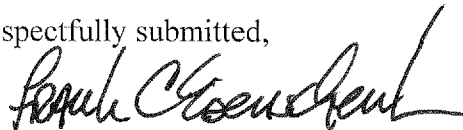
It should be understood that the amendments presented herein have been made solely to expedite prosecution of the subject application to completion and should not be construed as an indication of Applicants' agreement with or acquiescence in the Examiner's position. Applicants expressly reserve the right to pursue the invention(s) disclosed in the subject application, including any subject matter canceled or not pursued during prosecution of the subject application, in a related application.

In view of the foregoing remarks and amendments to the claims, Applicants believe that the currently pending claims are in condition for allowance, and such action is respectfully requested.

The Commissioner is hereby authorized to charge any fees under 37 CFR §§1.16 or 1.17 as required by this paper to Deposit Account No. 19-0065.

Applicants invite the Examiner to call the undersigned if clarification is needed on any of this response, or if the Examiner believes a telephonic interview would expedite the prosecution of the subject application to completion.

Respectfully submitted,



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